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A new approach to the word and **conjugacy problems** in the **braid** groups

J Birman, KH Ko, SJ Lee - Advances in Mathematics, 1998 - Elsevier

... We also give a related solution to the **conjugacy problem**, but the improvements in its complexity are not clear at this writing. References. 1. SI Adjan, Defining relations and algorithmic problems for groups and semigroups. Proc. ... 9. FA Garside, The braid group and other groups. ...

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The **braid group** and other groups

FA Garside - Quart. J. Math. Oxford, 1969 - Oxford Univ Press

... THE braid group B n+1 was first defined by Artin in a paper published in 1926 (1). The word problem for the group was solved ... The primary concern will be to give the solution of the conjugacy problem in B n+1. A new solution of the word problem is also given, and a new ...

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[PDF] An algebraic method for public-key cryptography

I Anshel, M Anshel, D Goldfeld - Mathematical Research Letters, 1999 - Citeseer

... An example is the **braid group** on n strands where the word **problem** for a word w (of length |w|) can be solved in running time O(|w| 2 n) while the best known algorithm for solving the **conjugacy** problem requires at least exponential running time (see [2]). Recent developments ...

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New key agreement protocols in **braid group** cryptography

I Anshel, M Anshel, B Fisher, D Goldfeld - Lecture Notes in Computer ..., 2001 - Springer

... was introduced for constructing key ag- reement protocols based on combinatorial group theory, the ... security of the protocols was based on the difficulty of solving conjugacy and commutator ... Braid groups provide a thread linking combinatorial problems in knot theory [10] to ...

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Conjugacy problem for braid groups and Garside groups

N Franco, J Gonzalez-Meneses - Journal of Algebra, 2003 - Elsevier

... MathSciNet. [11]. FA Garside, The **braid group** and other groups. Quart. ... Full Text via CrossRef.

[13]. J. Michel, A note on words in **braid** monoids. J. Algebra 215 (1999), pp. ... [15]. M. Picantin,

psu.edu (PDF)

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The **conjugacy problem** in small Gaussian groups. Comm. Algebra 29 3 (2001), pp. ...

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A practical attack on some **braid group** based cryptographic primitives

D Hofheinz, R Steinwandt - Lecture notes in computer science, 2002 - Springer

... So we eventually obtain an algorithm for the **conjugacy problem** in the **braid group** B n : given

 $v, w \in B \ n$, we compute S(v) and one element w of S(w). Then v and w are **conjugate** iff $w \in B$

S(v). This approach cannot only be used to decide whether v and w are conjugated; it can ...

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New public-key cryptosystem using braid groups

KH Ko, SJ Lee, JH Cheon, JW Han, J Kang, C ... - Lecture Notes in ..., 2000 - Springer ... design. Key words: public key cryptosystem, **braid group**, **conjugacy problem**, key exchange, hard **problem**, non-commutative **group**, one-way function, public key infrastructure 1 Introduction 1.1 Background and Previous Results ...

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A POLYNOMIAL INVARIANT FOR KNOTS VIA VON NEUMANN ALGEBRAS1

VFR Jones - AMERICAN MATHEMATICAL SOCIETY, 1985 - ams.org

... union of the **braid** groups. Unforunately, although the **conjugacy problem** has been solved by F. Garside [8] within each **braid group**, there is no known algorithm to decide when (6, n) and (c, m) are equivalent. For a proof of ...

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The conjugacy problem in small Gaussian groups

M Picantin - Communications in Algebra, 2001 - Citeseer

... We show here how to extend the Elrifai-Morton solution for the **conjugacy problem** in **braid** groups to every small Gaussian **group**. ... We show here how to extend the Elrifai-Morton solution for the **conjugacy problem** in **braid** groups to every small Gaussian **group**. Citations. ...

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A polynomial time algorithm for the braid Diffie-Hellman conjugacy problem

JH Cheon, B Jun - Advances in cryptology-CRYPTO, 2003 - Springer

... Keywords: **Braid group**, Non-abelian **group**, **Conjugacy Problem** 1 Introduction ... Their basic mathematical **problem** is the **Conjugacy Problem** (CP) on **braids**: For a **braid group** B n , we are asked to find a **braid** a from $u, b \in B$ n satisfying ...

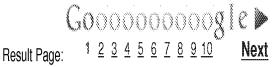
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